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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/875,501 06/04/01 SCHUEGRAF

K MI22-1741

021567 MM91/1108  
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EXAMINER

ORTIZ, E

ART UNIT

PAPER NUMBER

2815

DATE MAILED:

11/08/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trad marks**

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# Office Action Summary

Application No.  
09/875,501

Applicant(s)  
Schuegraf Et.al.

Examiner  
Edgardo Ortiz

Art Unit  
2815



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jun 4, 2001
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 21-28 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

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Art Unit: 2815

### **DETAILED ACTION**

This Office Action is in response to a preliminary amendment filed June 4, 2001 on which Applicant canceled Claims 1-20.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 21-24 are rejected under 35 U.S.C. § 102 (e) as being anticipated by Ilg et.al. (U.S. Patent No. 6,130,145). With regard to Claim 21, Ilg teaches a polysilicon layer (230) and a metal-silicide layer (240) against the layer of polysilicon, the metal-silicide layer comprising a Group III dopant or a Group V dopant.

With regard to Claim 22, Ilg teaches a metal-silicide layer (240) comprising a concentration of dopant of at least about  $1 \times 10^{18}$  ions/cubic centimeter.

With regard to Claim 23, Ilg teaches a metal-silicide layer (240) comprising a Group III dopant or a Group V dopant.

Art Unit: 2815

With regard to Claim 24, Ilg teaches a metal-silicide layer (240) comprising a concentration of dopant of at least about  $1 \times 10^{18}$  ions/cubic centimeter.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-28 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Applicant's admitted prior art figures in view of Ilg et al. (U.S. Patent No. 6,130,145). With regard to Claim 25, Applicant's admitted prior art figures teach a first dielectric layer (16a) over a substrate (12a), a floating gate (18a) over the first dielectric layer, a second dielectric (26) over the floating gate, a conductive line (28) over the second dielectric layer and a metal-silicide layer (30) over the conductive line.

However, Applicant's admitted prior art fails to teach, a metal-silicide layer comprising a Group III dopant or a Group V dopant. Ilg teaches a metal-silicide layer (240), in a gate stack, that comprises a Group III dopant or a Group V dopant. Therefore, it would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the Applicant's admitted prior art structure to include a metal-silicide layer comprising a Group III

Art Unit: 2815

dopant or a Group V dopant as taught by Ilg, in order to decrease thickness, achieve a lower sheet resistance and reduce problems associated with metal-rich interfaces.

With regard to Claims 26 and 27, Applicant's admitted prior art teaches programmable read only memories, such as an EPROM or an EEPROM.

With regard to Claim 28, a further difference between the claimed invention and Applicant's prior art is, a metal-silicide layer comprising a concentration of dopant of at least about  $1 \times 10^{18}$  ions/cubic centimeter. Ilg teaches a metal-silicide layer (240), in a gate stack, comprising a concentration of dopant of at least about  $1 \times 10^{18}$  ions/cubic centimeter. Therefore, it would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the Applicant's admitted prior art structure to include a metal-silicide layer comprising a concentration of dopant of at least about  $1 \times 10^{18}$  ions/cubic centimeter as taught by Ilg, in order to increase the grain size of the film, thereby lowering its resistance.

### *Conclusion*


3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Edgardo Ortiz (Art Unit 2815), whose telephone number is (703) 308-6183. In case the Examiner can not be reached by a direct telephone call, you might call Supervisor Eddie Lee at (703) 308-1690. Any inquiry of a general nature or relating to the status

Art Unit: 2815

of this application should be directed to the Group 2800 receptionist whose telephone number is  
(703) 308-0956.

EO / AU 2815

11/2/01



**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**